

**Amendments to the Claims**

This listing of claims will replace all prior versions, and listing, of claims in the application:

**Listing of Claims:**

1. (Currently amended) An X-ray apparatus for inspecting an object ~~a cargo container~~, such apparatus comprising:

~~a moveable platform with~~ an X-ray source and X-ray detector disposed ~~on the platform~~ on opposing sides of a scanning zone ~~where the scanning zone may be moved along a length of the cargo container to scan a volume of the cargo container~~, said X-ray source being disposed in a spaced-apart relationship with respect to the scanning zone;

a first collimator in addition to any other collimator that may be integral to the X-ray source, disposed between the X-ray source and the scanning zone and being located proximate the X-ray source;

a precollimator disposed ~~on the X-ray platform~~ between the first collimator ~~X-ray source~~ and the scanning zone, said precollimator being located proximate the scanning zone; and

at least one an intermediate collimator disposed midway between the first collimator ~~X-ray source~~ and the precollimator, said intermediate collimator having a spaced-apart relationship with respect to the precollimator and ~~to the first collimator X-ray source~~ and being substantially stationary with respect to the precollimator.

2. (Original) The X-ray apparatus as in claim 1 wherein the intermediate collimator further comprises a pair of wings for intercepting backscatter operatively extending from opposing sides of a collimating slot of the intermediate collimator towards the X-ray source.

3. (Currently Amended) The X-ray apparatus as in claim 2 wherein the pair of wings further comprises a mounting position that is set back from a center line of a collimating entrance of the intermediate collimator by a ~~substantially equal distance~~ such that the pair of wings intercept at least a portion of an X-ray beam penumbra from a previous collimator.

4. (Currently Amended) The X-ray apparatus as in claim 3 wherein ~~the set back of the pair of wings has a thickness from the centerline of the collimating entrance of the intermediate collimator further comprises a distance between the wings that is substantially equal to one percent of the distance from the X-ray source that is sufficient to block at least a substantial majority of radiation that is scattered from an intermediate collimator surface that faces the X-ray source.~~

5. (Currently Amended) The X-ray apparatus as in claim 1 wherein the intermediate collimator further comprises an overall width that is at least ~~less than 6% of a distance to the X-ray source~~ equal to a collimating entrance of the intermediate collimator, plus twice a setback of the pair of wings, plus twice a thickness of the pair of wings.

6. (Original) The X-ray apparatus as in claim 1 wherein the precollimator further comprises a pair of wings for intercepting backscatter operatively extending from opposing sides of a collimating slot of the precollimator towards the X-ray source.

7. (Currently Amended) The X-ray apparatus as in claim 6 wherein the set back of the pair of wings from the centerline of the collimating entrance of the precollimator further comprises a distance between the wings ~~that is substantially equal to one half percent of the distance from the X-ray source~~ such that the pair of wings at least substantially intercept a penumbra of an X-ray beam from a previous collimator.

8. (Currently Amended) The X-ray apparatus as in claim 1 wherein the precollimator further comprises a pair of wings for intercepting backscatter operatively extending from opposing sides of a collimating slot of the precollimator towards the X-ray source and wherein the precollimator has an overall width that is at least equal to a collimating entrance of the precollimator, plus twice a setback of the pair of wings, plus twice a thickness of the pair of wings.~~is less than 2% of a distance to the X-ray source.~~

9. (Original) The X-ray apparatus as in claim 1 wherein the detector further comprises a postcollimator that supports a set of detector elements, said postcollimator further comprising a pair of wings for intercepting backscatter operatively extending from opposing sides of a front face of the set of detectors towards the X-ray source.

10. (Currently Amended) The X-ray apparatus as in claim 3 wherein the postcollimator further comprises a pair of wings for intercepting backscatter operatively extending from opposing sides of a collimating slot of the postcollimator towards the X-ray source and wherein the set back of the pair of wings from the centerline of the collimating entrance of the postcollimator further comprises a distance~~between the~~such that the pair of wings at least substantially intercept an X-ray beam penumbra from a previous collimator, wings that is substantially equal to 0.2 percent of the distance from the X-ray source.

11. (Original) The X-ray apparatus as in claim 1 further comprising a source collimator disposed adjacent the X-ray source.

12. (Original) The X-ray apparatus as in claim 11 wherein the source collimator further comprises a collimating slot with an entrance having a width that is approximately one percent of a distance from a point of origin of X-rays from the X-ray source to the entrance of the source collimator.

13. (Original) The X-ray apparatus as in claim 12 wherein the source collimator further comprises a collimating slot with an exit having a width that is less than one percent of a distance from the point of origin of the X-ray source to the exit of the source collimator.

14. (Original) The X-ray apparatus as in claim 1 wherein the intermediate collimator further comprises a collimating slot with an entrance having a width that is less than one-half percent of a distance from the X-ray source to the entrance of the intermediate collimator.

15. (Currently Amended) The X-ray apparatus as in claim 14 wherein the intermediate collimator further comprises the collimating slot with an exit having a width that is about one-third percent of a distance from the X-ray source to the exit of the source collimator ~~collimating~~.

16. (Original) The X-ray apparatus as in claim 1 wherein the precollimator further comprises a collimating slot with an entrance having a width that is about one-tenth percent of a distance from the X-ray source to the entrance of the precollimator.

17. (Currently Amended) The X-ray apparatus as in claim 16 wherein the precollimator further comprises the collimating slot with an exit having a width that is ~~about one-half millimeter~~ larger than the entrance.

18. (Currently Amended) The X-ray apparatus as in claim 1 wherein the precollimator ~~postcollimator~~ further comprises a collimating slot with an entrance having a width that is about 0.05 percent of a distance from the X-ray source to the entrance of the precollimator ~~postcollimator~~.

19. (Currently Amended) A ~~non-invasive~~ method for inspecting an object ~~a cargo container~~, such method comprising the steps of:

providing ~~a moveable platform~~ with an X-ray source and X-ray detector ~~disposed on the platform~~ on opposing sides of a scanning zone ~~where the scanning zone may be moved along a length of the cargo container to scan a volume of the cargo container~~, said X-ray source being disposed in a spaced-apart relationship with regard to the scanning zone;

disposing a first collimator proximal to the X-ray source and between the X-ray source and the scanning zone;

disposing a precollimator ~~on the X-ray platform~~ between the first collimator ~~X-ray source~~ and the scanning zone, said precollimator being located proximate the scanning zone;

disposing an intermediate collimator ~~midway~~ between the first collimator ~~X-ray source~~ and the precollimator, which intermediate collimator is stationary with respect to the first collimator; and

inspecting the object ~~cargo container~~ by transmitting an X-ray beam from the X-ray source to the X-ray detector using the first collimator, the intermediate collimator and the precollimator to control expansion and scatter of the X-ray beam.

20. (Currently Amended) The ~~non-invasive~~ method ~~for inspecting the cargo container~~ as in claim 19 further comprising providing a pair of wings on opposing sides of a collimator slot of the intermediate collimator to control backscatter.

21. (Currently Amended) The ~~non-invasive~~ method ~~for inspecting the cargo container~~ as in claim 19 further comprising providing a pair of wings on opposing sides of a collimator slot of the precollimator to control backscatter.

22. (Currently Amended) The ~~non-invasive~~ method ~~for inspecting the cargo container~~ as in claim 19 further comprising providing a pair of wings on opposing sides of a collimator slot of the precollimator ~~postcollimator~~ to control backscatter.

23. (New) An X-ray beam collimator comprising:

- a primary body having a collimating slot formed therethrough;
- a pair of wings disposed on the primary body and extending away from the primary body, the pair of wings forming an X-ray beam pathway slot that is wider than the collimating slot and that serves to intercept and diminish X-ray beam scatter as will occur when an X-ray beam impinges the collimating slot and a surface of the collimator that faces the X-ray source.

24. (New) The X-ray beam collimator of claim 23 wherein the X-ray beam pathway slot formed by the pair of wings is substantially co-axially aligned with the collimating slot.

25. (New) The X-ray apparatus as in claim 1 wherein the first collimator further comprises a collimating slot having an exit having a width that is larger than an entrance to the collimating slot.

26. (New) The X-ray apparatus as in claim 1 wherein the intermediate collimator further comprises a collimating slot having an exit having a width that is larger than an entrance to the collimating slot.

27. (New) The X-ray apparatus as in claim 8 wherein the setback of the pair of wings further comprises a distance between edges of the X-ray beam and the pair of wings to thereby accommodate misalignment of the precollimator.

28. (New) The X-ray apparatus as in claim 10 wherein the setback of the pair of wings further comprises a distance between edges of the X-ray beam and the pair of wings to thereby accommodate misalignment of the postcollimator.